



2022 Stormwater Design Manual Addendum

**(When combined with the Department of Ecology 2019
Stormwater Management Manual for Western
Washington is the adopted City of Issaquah “Stormwater
Design Manual”)**

Prepared by:

City of Issaquah Public Works Department

Adopted by the City Council

[9.6.2022]

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ATTACHMENTS

- Attachment 1. Ordinance 2989 Adopting Stormwater Manual
- Attachment 2. IMC Chapter 16.26. Clearing, Grading and Stormwater Management

CHAPTER 1. INTRODUCTION

1.1 GENERAL REQUIREMENTS

The City of Issaquah adopted through Ordinance 2989 (included as Attachment 1) the Washington Department of Ecology (Ecology) 2019 Stormwater Management Manual for Western Washington (SWMMWW) for the design, construction and maintenance of stormwater management systems and facilities that are approved through the development permitting process. This document, the City of Issaquah 2022 Stormwater Design Manual Addendum (Addendum), is also adopted and in combination these two documents are referred to as the ***Stormwater Design Manual***. These requirements are codified in Issaquah Municipal Code (IMC) Chapter 16.26, Clearing, Grading, and Stormwater Management (included as Attachment 2).

The 2019 Stormwater Management Manual for Western Washington is available on Ecology's website (Ecology Publication Number 19-10-021):

<https://fortress.wa.gov/ecy/ezshare/wq/Permits/Flare/2019SWMMWW/2019SWMMWW.htm>

The requirements contained in this Addendum are intended to match Appendix I of the 2019-2024 NPDES Western Washington Phase II Municipal Stormwater Permit. This Addendum also contains City permit submittal, review, and approval requirements, and specific design standards and details approved by the City of Issaquah.

1.1.1 Stormwater Management Objectives

The intent of the adoption of the Stormwater Design Manual is to comply with the thresholds, definitions, minimum requirements and exceptions, adjustment and variance criteria in Appendix I of the NPDES Western Washington Phase II Municipal Stormwater Permit (Phase 2 Permit). The Phase II Permit dictates the stormwater development standards for over 80 cities and counties in Western Washington, and these standards are implemented through Ecology-approved technical guidance manuals.

1.1.2 New Requirements for 2022

In general, these are the most significant new requirements for 2022:

- Continuous Simulation Modeling: Text throughout the SWMMWW has been updated to require continuous simulation models that include:

- The ability to directly model BMPs that may be used in LID applications, such as bioretention, permeable pavement, and green roofs.
- 15-minute time steps.
- Incorporation of the van Genuchten algorithm to model bioretention.

Replaced Hard Surfaces Redevelopment Threshold: The Minimum Requirement
Thresholds for non-road related commercial or industrial redevelopment projects have
been updated to require the project proponent to compare the value of the proposed
improvements to the value of the Project Site (the limits of disturbance) improvements,
rather than the Site (the entire parcel) improvements.

- Equivalent Areas: The Redevelopment Project Thresholds have been updated to allow a
project proponent to provide Stormwater Management BMPs for an equivalent area.
The equivalent area may be on-site, or off-site if the area drains to the same receiving
water and the guidance for in-basin transfers is followed.
- Minimum Requirement 2: The 13 Elements in [I-3.4.2 MR2: Construction Stormwater](#)
Pollution Prevention Plan (SWPPP) have been updated to incorporate changes that
were made to the 2015-2020 Construction Stormwater General Permit.
- Minimum Requirement 5: [I-3.4.5 MR5: On-Site Stormwater Management](#) has been
updated to require [BMP T5.13: Post-Construction Soil Quality and Depth](#) when
choosing to use the LID Performance Standard to meet Minimum Requirement 5 for
Minimum Requirement 1-5 projects.
- Minimum Requirement 7: [I-3.4.7 MR7: Flow Control](#) has been updated to ensure that
a TDA discharging to a marine waterbody meets all exemption requirements before it
can be determined to be Flow Control exempt.
- Concrete Washout BMPs: [BMP C151: Concrete Handling](#) and [BMP C154: Concrete](#)
Washout Area have been updated to clarify that auxiliary concrete truck components
and small concrete handling equipment may be washed into formed areas awaiting
concrete pour, while concrete truck drums must be washed either off-site or into a
concrete washout area.

- Source Control BMPs: [Volume IV](#) (Source Control BMP Library) has been updated with Source Control BMPs for activities not listed in previous versions of the manual. The new activities with Source Control BMPs are:
 - [S434 BMPs for Dock Washing](#)
 - [S441 BMPs for Potable Water Line Flushing, Water Tank Maintenance, and Hydrant Testing](#)
 - [S435 BMPs for Pesticides and an Integrated Pest Management Program](#)
 - [S444 BMPs for the Storage of Dry Pesticides and Fertilizers](#)
 - [S449 BMPs for Nurseries and Greenhouses](#)
 - [S450 BMPs for Irrigation](#)
 - [S445 BMPs for Temporary Fruit Storage](#)
 - [S439 BMPs for In-Water and Over-Water Fueling](#)
 - [S436 BMPs for Color Events](#)
 - [S438 BMPs for Construction Demolition](#)
 - [S440 BMPs for Pet Waste](#)
 - [S442 BMPs for Labeling Storm Drain Inlets On Your Property](#)
 - [S443 BMPs for Fertilizer Application](#)
 - [S446 BMPs for Well, Utility, Directional and Geotechnical Drilling](#)
 - [S447 BMPs for Roof Vents](#)
 - [S451 BMPs for Building, Repair, Remodeling, Painting, and Construction](#)
 - [S452 BMPs for Goose Waste](#)
- Wetlands Guidance: [Appendix I-C: Wetland Protection Guidelines](#) and [I-3.4.8 MR8: Wetlands Protection](#) have been updated to require monitoring and modeling of high value wetlands, if the project proponent has legal access to them. The 2014 wetland guidance is retained, but refined, for modeling requirements for lower value wetlands (and high value wetlands that the project proponent does not have legal access to).
- I-3.5.3 APM2: Off-Site Analysis Report
- 2021 King County Surface Water Design Manual adopted sections:
 - Chapter 4- Conveyance System Analysis & Design. Hydraulic analysis, Conveyance, and Outfall design procedures must be followed

- Figure 3.2.1.B- 10-Year 24-Hour Isopluvials. Used to determine 10 Year storm precipitation levels

1.1.3 Significant Differences between Ecology and Issaquah Requirements

While most of the SWMMWW is applicable to the City of Issaquah, several significant differences are contained in this Addendum and through other City requirements for development permitting, including (but not limited to):

- Central Issaquah Area Alternative Flow Control Standard, identified in Table 1-1 and described in Section 2.3.5 and shown on Figure 2-4, modifies the flow control standard in the valley floor area of downtown Issaquah by allowing existing land use to be assumed for the pre-developed condition.
- The Central Issaquah Area Seasonally Saturated Soil Assumption can be used in valley floor areas whether site investigations demonstrate that the site contained seasonally saturated soils and thus can be modeled as wetlands (see Section 2.3.6).
- Turbidity discharge from the project site into City's MS4 shall not exceed 100 NTUs (nephelometric turbidity units) at all times up to the 10 year/24 hour storm event (3.8 inches in 24 hours) as measured at the City's rain gage. (see Section 1.2.6).
- The Community Planning and Development conducts stormwater review. Permit applications are submitted online through www.MyBuildingPermit.com (see Section 1.4.1).
- Submittal requirements specific to City of Issaquah requirements have been developed and are available on the City's website and through the online permitting portal. City of Issaquah standard details, notes and materials are also referenced (see Section 1.4.3).
- 2021 King County Surface Water Design Manual adopted sections:
 - Chapter 4- Conveyance System Analysis & Design. Hydraulic analysis, Conveyance, and Outfall design procedures must be followed (see section 1.2.3.1)
 - Figure 3.2.1.B- 10-Year 24-Hour Isopluvials. Used to determine 10 Year storm precipitation levels

1.1.4 Interpretation of Conflicting Standards

Users of this Addendum shall refer to Appendix I of the Phase II Permit, along with associated references in the SWMMWW, to help interpret the requirements of this Addendum, should any discrepancies or questions be found in this Addendum. This interpretation shall not affect City standards contained herein or in IMC Chapter 16.26 that are intended to meet the minimum requirements of the Phase II Permit.

1.1.5 Projects Vested under Previous Manuals

This manual does not impact stormwater requirements for development projects that were previously permitted and vested. Those projects are still able to apply vested standards as appropriate and as conditioned.

However, procedures contained in this Addendum and technical guidance contained in the Stormwater Design Manual shall be used in conjunction with those earlier standards.

1.2 REQUIREMENTS

1.2.1 Screening and Project Review

Table 1-1 is a summary of the different project types requiring drainage review. This is a project screening tool that is based on Figures 2-2 and 2-3 that is used only to determine which minimum requirements a project may be subject to. The actual criteria are in the Minimum Requirements, as applied to each threshold discharge area separately (see next section).

1.2.2 Flow Control and Water Quality BMPs

The Stormwater Design Manual contains the technical guidance on measures necessary to control the quantity and quality of stormwater. This is done through application of the minimum requirements and Best Management Practices (BMPs).

Tables 1-2 and 1-3 are summaries of required flow control and water quality treatment BMP requirements. These summaries are intended to inform applicants of the major stormwater requirements to help scoping of detailed project design. Please refer to Chapter 2 of this Addendum and the SWMMWW for specific requirements for these and other minimum requirements that must be followed during design.

Table 1-1 PROJECT SCREENING FOR STORMWATER REVIEW							
Project Type ^b	Screening Thresholds ^a			Minimum Requirements ^a			
	Hard Surfaces		Land Clearing	MR #1-5	MR #6-9	Stormwater Facility Target Surfaces ^d	Pre-Dev Cond.
1. TESC Only	<2000 SF new plus replaced hard surfaces	or	<7000 SF land disturbance	MR #2 – Construction Stormwater Pollution Prevention Plan			
2. New Development – All projects^c	2000-5000 SF new plus replaced hard surfaces	or	7000-32,670 SF land disturbance	✓		--	--
	>5000 SF new plus replaced hard surfaces	or	>32,670 SF land disturbance	✓	✓	<u>New and replaced</u> hard surfaces	Forested
3a. Redevelopment - Value of proposed improvements is <50% of assessed value of existing site improvements^c	2000-5000 SF new plus replaced hard surfaces	or	7000-32,670 SF land disturbance	✓		--	--
	>5000 SF new plus replaced hard surfaces	or	>32,670 SF land disturbance	✓	✓	<u>New</u> hard surfaces and converted vegetation areas	Forested
3b. Redevelopment for non-commercial and non-industrial - Value of proposed improvements is >50% of assessed value of existing site improvements^c	2000-5000 SF new plus replaced hard surfaces	or	7000-32,670 SF land disturbance	✓		--	--
	>5000 SF new plus replaced hard surfaces	or	>32,670 SF land disturbance	✓	✓	<u>New and replaced</u> hard surfaces and converted vegetation areas	Forested
3c. Redevelopment for Commercial or Industrial Projects - Value of proposed improvements is >50% of assessed value of the Project site improvements.	2000-5000 SF new plus replaced hard surfaces	or	7000-32,670 SF land disturbance	✓		--	--
	>5000 SF new plus replaced hard surfaces	or	>32,670 SF land disturbance	✓	✓	<u>New and replaced</u> hard surfaces and converted vegetation areas	Forested
4a. Transportation redevelopment - New hard surfaces add <50% to existing hard surfaces	2000-5000 SF new plus replaced hard surfaces	or	7000-32,670 SF land disturbance	✓		--	--
	>5000 SF new plus replaced hard surfaces	or	>32,670 SF land disturbance	✓	✓	<u>New</u> hard surfaces only	Forested
4b. Transportation redevelopment - New hard surfaces add >50% to existing hard surfaces	2000-5000 SF new plus replaced hard surfaces	or	7000-32,670 SF land disturbance	✓		--	--
	>5000 SF new plus replaced hard surfaces	or	>32,670 SF land disturbance	✓	✓	<u>New and replaced</u> hard surfaces	Forested

5. Central Issaquah Alternative Flow Control Area (see Figure 2-5) – All projects	2000-5000 SF new plus replaced hard surfaces	or	7000-32,670 SF land disturbance	✓		--	--
	>5000 SF new plus replaced hard surfaces	or	>32,670 SF land disturbance	✓	✓	<u>New</u> hard surfaces for MR#7 only. <u>New and replaced</u> surfaces for all other minimum requirements	Existing

^aSee Chapter 2 for requirements, following the flow charts in Figures 2-4 and 2-4 and referring to Minimum Requirements for specific criteria.

^bSee Chapter 2.1 for additional exemptions.

^cNew Development are sites with <35% existing impervious coverage; Redevelopment are sites with >35% existing impervious coverage.

^dStormwater Facility Target Surfaces: for flow control and water quality treatment. Onsite Stormwater BMPs required under MR #5.

TABLE 1-2 REQUIREMENTS FOR WATER QUALITY (MR #6)

Thresholds	<ul style="list-style-type: none"> Required for projects with new or replaced <i>pollution generating hard surface</i> > 5000 sf and for <i>pollution generating pervious surface</i> >3/4 ac. (see Target Surface definition under project type). Oil control is required for high use sites
Standards	<ul style="list-style-type: none"> Phosphorus removal is required for projects discharging to surface waters. Enhanced treatment for certain land uses and oil control for high use sites. Pretreatment or Basic treatment is required prior to infiltration.
Surfaces	Pollution generating hard surfaces and pollution generating pervious surface (e.g., landscaping, turf fields, etc.)
Facility types	See Section 1.2.2.3 and Table 1-4. Treatment systems must be sized for the entire flow draining to the facility, not just additional areas added as part of a redevelopment project.

TABLE 1-3 REQUIREMENTS FLOW CONTROL (MR #7)

Threshold	<p>If a TDA meets any of the following thresholds, Flow Control BMPs are required. The project proponent must demonstrate that the TDA does not meet any of the following thresholds for Flow Control BMPs to not be required for that TDA :</p> <ul style="list-style-type: none"> • All sites with <i>Total effective impervious surface</i> >10,000 sf, or • >3/4 acres of vegetation converted to lawn or landscape, or • Projects that through a combination of effective hard surfaces and converted vegetation areas cause a 0.15 cfs or greater increase in the 100-year flow frequency as estimated using an approved continuous simulation model and 15-minute time steps. <p><i>Note: thresholds apply separately to each threshold discharge area</i></p>
Standard	Match developed discharge durations to pre-developed duration for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow (i.e., "Level 2").
Target Surfaces	See Table 1-1 for summary, as further described in Chapter 2, to determine whether target surfaces include new or new plus replaced hard surfaces.
Pre-Developed Assumption	<p>Depends on project type and location (see Fig. 2-2 and 2-3):</p> <ul style="list-style-type: none"> • New Development (>35% existing impervious): Forested • Redevelopment (>35% existing impervious): Forested • Central Issaquah Area Alternative Flow Control Standard (new and redevelopment): Existing
Soils	<p>Soil type shall be assumed to be existing site conditions, except as follows:</p> <ul style="list-style-type: none"> • <u>Saturated pre-development soils</u> can be assumed if applicants can demonstrate through a soil investigation that the site was historically (i.e., prior to European settlement) seasonally saturated.
Facility types	Flow control can be achieved through any combination of engineered facilities (e.g., stormwater pond or vault), infiltration to groundwater, and stormwater LID techniques.
Exemptions	Direct discharge to Lake Sammamish is exempt from flow control requirements, assuming the conveyance system is designed to accommodate the design peak discharge under full build-out condition for the local drainage area.

1.2.3 Hydrologic Analysis (Approved Model)

The Approved Model for hydrologic analysis is the Western Washington Hydrology Model (WWHM2012 or subsequent versions). This software can be obtained at this Ecology website:

<http://www.ecy.wa.gov/programs/wq/stormwater/wwhmtraining/index.html>

Commercial versions of WWHM, obtained through Clear Creek Solutions, are also accepted, and provide added functionality compared to the public domain WWHM version.

1.2.3.1 Hydraulic Analysis, Conveyance System Design, Off-Site Analysis Drainage Report

All conveyance systems must be designed in accordance with the criteria in the Stormwater Design Manual Addendum, City of Issaquah Stormwater Standard Details, and Chapter 4 of the 2021 King County Surface Water Design Manual. All facilities shall be designed with public access for inspection and maintenance. Sites that only require compliance with MR #2 are not required to conduct hydraulic analysis of storm sewer or drainage systems. For projects that require compliance with MR #1-5 or MR # 1-9, the hydraulic analysis procedures contained in the Stormwater Design Manual Addendum must be followed.

All development and redevelopment projects requiring review under the Ecology Manual or Addendum will prepare an Off-Site Analysis Report (OAR), generally following the guidance of Section I-3.5.3 Additional Protective Measures 2 (APM2) as outlined in the Ecology Manual and as detailed herein. The OAR review is to be included in the Stormwater Drainage Analysis/Technical Information Report (TIR) submittal, part c. Off-site Analysis Report. The OAR will consider, but is not limited to, review and assessment of:

- current and future conveyance capacity
- upland erosion impacts (including landslide hazards)
- stream channel erosion at outfall location
- localized site flooding potential
- any known violations of standards for surface water quality, groundwater, or wellhead protection areas
- the potential impacts to the project of a drainage system failure, off-site run-on, storms in excess of the design storm, or any probable cause.

If problems are identified, the analysis will address how the project:

- will not aggravate or increase the frequency or severity of an existing off-site drainage problem
- will mitigate for the potential impacts to the project from existing drainage systems or deficiencies to minimize future project site impacts or property damage.

The OAR, as described in I-3.5.3 APM2 of the Ecology Manual and as amended and modified below, shall be required and documented in the project TIR, including the qualitative and quantitative off-site analyses, unless after review of the qualitative analysis the City determines that, due to the nature of the project and the low potential for off-site or on-site impacts to the project, a quantitative review is not required.

The Supplemental Guidelines, Items 1-4, described in I-3.5.3 APM2 and subsequent amendments to, shall be included in the quantitative analysis and, in addition, include the following information:

1. Define and map the study area:
 - a. flow paths, including upstream drainage areas and flow paths to the site
 - b. review and show on a site and/project area map the source and disposition of run-on from adjacent sites from any probable source, including ditch and gutter overflows, roadways, topographic lows or sheet flow, or other channelized or directed flow that is in overflow.
 - c. Ultimate discharge point to a receiving water
2. Review all available information on the study area:
 - a. No additional information is required beyond the APM2 guidance
3. Field inspect the study area:
 - a. Investigate adjacent site drainage systems, topography and flow paths, and off-site run-on.
4. Describe the drainage system and its existing and predicted problems:
 - a. Description of potentially affected project elements or off-site properties and the type or nature of flooding impacts.
 - b. Narrative description of measures to mitigate impacts and reduce potential disruption or damages on development site, or to minimize off-site impacts.
 - c. Assessment and calculations to demonstrate the cost-benefit analysis of the project site impact mitigation needs and drainage mitigation resiliency plan.
 - d. Other materials requested by the City to assess proposed mitigation and resiliency measures

Mitigation Submittal Requirements

If the disposition of runoff or system flows onto or from the site can aggravate flooding or damage property, structures, stored materials; or cause/aggravate disruptions or nuisance to areas outside of the project limits; or run-on to the site can cause flooding to the proposed project, the following mitigation or similar measures should be considered and applied:

- Reduce or minimize post-project peak flows to downstream properties
- Contribute to repair or mitigate existing downstream impacts
- Allow for and accommodate pass-through of off-site run-on in a natural path, location, and amount
- Minimize the impact of off-site run-on through collection measures such as slot drains, collection channels, or grading
- Protect or floodproof new construction or projects to minimize impacts due to an upslope drainage system failure
- Design or protect new construction or projects from site drainage or off-site run-on

- Design new construction or projects to be resilient to flooding with minimal damage
- Increase the capacity of proposed drainage systems to accommodate future flows or upslope system failures.
- Protect properties from off-site roadway drainage run-on with curbs, berms, slot drains, or similar control measures

When circumstances suggest potential unavoidable adverse drainage impacts, prepare an engineering impact and mitigation analysis. The analysis will assess the engineering measures or project modifications, mitigation, and resilience measures to be implemented to minimize impacts. This analysis will include an engineering assessment of the cause and potential magnitude of impacts and the cost-benefit evaluation of the proposed avoidance, mitigation, or resiliency measures.

1.2.3.2 Water Quality Treatment Options

Water quality treatment devices approved by Ecology under the Technology Assessment Protocol - Ecology (TAPE) program is approved for use in the City of Issaquah. In addition:

- All discharges to surface waters shall assume phosphorus treatment.
- Facilities to be owned and maintained by the City must be on Approved Materials List.
- Only General Use Level Designation (GULD) treatment technologies are allowed. In cases where GULD approval is imminent from Ecology, or the device will be used in a retrofit project not subject to development regulations, the City may conditionally allow Conditional Use Level Designation (CULD) devices if allowed by the manufacturer.
- All TAPE-approved treatment devices must be selected in accordance with their intended use: pretreatment, oil treatment, basic treatment, enhanced treatment, phosphorus removal, and construction sites. Design must follow the TAPE approvals for pretreatment, hydraulic profile, design treatment flow rates, flow bypass, and other criteria.

A complete list of approved treatment devices can be found on Ecology's website: <https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies>

1.2.4 On-Site Stormwater BMPs (Low Impact Development BMPs)

On-site stormwater management BMPs (SWMMWW Minimum Requirement #5), also known as stormwater Low Impact Development (LID), provide for stormwater treatment and flow control using methods that infiltrate, disperse, and retain stormwater runoff on-site. The requirement for Stormwater LID is in addition to conventional stormwater detention and treatment facilities. However, if designed appropriately and used extensively, stormwater LID can reduce the size or potentially eliminate the need for those conventional facilities.

Stormwater LID is defined by Ecology as a stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation, and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design. Examples of stormwater LID include flow dispersion, bioretention, rain gardens, and permeable pavement.

Stormwater LID is required where found to be feasible for each of these three categories of stormwater runoff: Lawn/Landscaped Areas, Roofs, and Other Hard Surfaces (e.g. parking lots, sidewalks). Each of the three surfaces is evaluated separately for LID feasibility, with the first techniques in each list that is found to be feasible must be implemented. Multiple BMPs may be required, such as a combination of full dispersion and rain gardens, to meet the full on-site stormwater BMP. If no LID technique is feasible, either singularly or in combination, then no LID is required for that category.

This analysis requires an in-depth analysis of site conditions in terms of onsite characteristics: soil, depth to seasonally high groundwater, geology and slope stability, topography, and others. Certain offsite characteristics also need evaluation, such as location of adjacent structures that could be adversely affected. Feasibility shall be determined by evaluation against:

1. Design criteria, limitations and infeasibility criteria identified for each on-site stormwater management BMP in Chapter 3 Volume I of the SWMMWW ; and
2. Competing needs criteria listed in Chapter 3 Volume I of the SWMMWW

1.2.5 Source Control BMPs

Stormwater source control BMPs (SWMMWW Minimum Requirement #3) focus on preventing stormwater pollution from occurring at its source, as opposed to treatment BMPs that attempt to reduce pollution in stormwater flows after the water is contaminated (i.e., "end of pipe" treatment).

Source control BMPs cover a wide spectrum of activities, both structural and operational that are applied to the entire site to reduce or prevent pollution in stormwater. These measures address pollution prevention at their source, by using practices such as specific design requirements to prevent non-stormwater discharges from entering the stormwater drainage system, good housekeeping, spill prevention, hazardous material containment, and pre-treatment measures.

All projects (but typically commercial, industrial, and multifamily) undergoing drainage review are required to implement applicable source controls. The City may, however, require mandatory source controls at any time through formal code enforcement if complaints, inspections, or studies reveal water quality violations.

Common source control BMPs that are typically required on new and re-development sites include:

- Enclosing and or covering the pollutant source
- Design of dumpster enclosures with no connection to storm drains. Stormwater catch basins must be located greater than 15ft away from dumpster enclosure/area.
- Connecting trash compactors to sewer
- Connection of interior (including garage) floor drains to sewer
- Covering of storage and operational areas within the site containing or handling potentially deleterious materials
- Physically segregating the pollutant source to prevent run-on of uncontaminated stormwater (berming, cover, sewer connections).
- Car or equipment washing areas connected to sewer.

A full list of source control BMPs are contained in SWMMWW Volume IV Source Control BMPs.

1.2.6 Construction Stormwater BMPs

Construction stormwater BMPs (SWMMWW Minimum Requirement #2) are required for all proposed projects that clear, grade, or otherwise disturb the site. Erosion and sediment

controls must be provided to prevent, to the maximum extent practicable, the transport of sediment and other pollutants from the project site to downstream drainage facilities, water resources, and adjacent properties. Referred to as Temporary Erosion and Sediment Control (TESC), this is required even if no permanent stormwater facilities are required or proposed.

The City TESC program differs from the SWMMWW and the Ecology Construction Stormwater General Permit in the following ways:

- TESC plan review is required even if the applicant is also required to obtain an Ecology Construction Stormwater General Permit.
- Discharge from the project site shall not exceed 100 NTUs (nephelometric turbidity units) at all times up to the 10 year/24 hour storm event (3.8 inches in 24 hours¹) as measured at the City's rain gage.
- City of Issaquah staff will conduct monitoring to verify compliance.
- Updates to the TESC plan are required if the project construction or other circumstances cause changes to the TESC facilities or strategies to meet the requirements herein.
- The City may issue a Stop Work Order and/or a civil penalty under Code Enforcement.

See IMC Chapter 16.26 for specific clearing and grading and TESC standards.

1.2.7 Retrofit Projects

In retrofit situations where the requirements of this Addendum and IMC 16.26 are not triggered, use of Ecology-approved emerging technology BMPs for water quality treatment are encouraged, but not required. New technologies for water quality treatment that are not yet approved by Ecology may be used with prior approval by the City. The request should include information that the proposed treatment device is effective in reducing pollutants from stormwater. The applicant, however, should recognize that subsequent redevelopment that triggers current or future water quality treatment requirements may require modification or replacement of the installed BMP with an Ecology-approved BMP.

¹ Determined by the 2021 King County Surface Water Design Manual- FIGURE 3.2.1.B 10-YEAR 24-HOUR ISOPLUVIALS

1.3 STORMWATER SITE DESIGN TO CONFORM WITH LAND USE CODES AND ADOPTED PLANS

1.3.1 Competing Needs Assessment

Ecology allows certain exemptions to the On-site stormwater management BMPs (SWMMWW Minimum Requirement #5) if there are competing needs at the development site. Competing Needs criteria are contained in Chapter 3.4.5 of Volume I of the SWMMWW. The On-site Stormwater Management BMPs can be superseded or restricted where they are in conflict with:

- Requirements of the following federal or state laws, rules, and standards: Historic Preservation Laws and Archaeology Laws, Federal Superfund or Washington State Model Toxics Control Act, Federal Aviation Administration requirements for airports, Americans with Disabilities Act.
- Where an LID requirement has been found to be in conflict with special zoning district design criteria adopted and being implemented pursuant to a community planning process, the existing local codes may supersede or reduce the LID requirement.
- Public health and safety standards.
- Transportation regulations to maintain the option for future expansion or multi-modal use of public rights-of-way.
- A local Critical Area Ordinance that provides protection of tree species.
- A local code or rule adopted as part of a Wellhead Protection Program established under the Federal Safe Drinking Water Act; or adopted to protect a Critical Aquifer Recharge Area established under the State Growth Management Act.

This assessment will be addressed during the land use permit process, prior to drainage review, following adopted City codes and policies.

1.3.2 Other Design Considerations

Stormwater site design must be initiated at the project conceptual design stage so that required stormwater facilities not only function given site topography and discharge points, but also to ensure these facilities integrate with land use codes. This evaluation occurs during the land use review and permitting phase. Stormwater LID is part of overall green infrastructure goals that are promoted by the City of Issaquah.

Ideally the two largely independent requirements of stormwater mitigation (both structural and LID) and land use design will be combined using an integrated approach to achieve green infrastructure goals. As an incentive, when stormwater low impact development principles are employed it can reduce the volume of stormwater that requires conveyance and treatment through conventional means, such as detention ponds. Such benefits can reduce site development costs.

1.4 OVERVIEW OF PERMIT SUBMITTAL REQUIREMENTS

1.4.1 Development Review Process

The Community Planning and Development (CPD) Department oversees and manages permit intake, review, tracking, and approval. The Permit Center, located within CPD at City Hall, provides general information for construction within the city limits. Construction permits assure that structures are built to nationally recognized standards, as well as designed to ensure that buildings are structurally sound and hazard free. Land use permits assure that structures meet zoning requirements and comply with environmental regulations.

The City of Issaquah accepts most permit types online through www.MyBuildingPermit.com. This system allows you to submit the application, upload required documents, download comments, send revisions, and receive approved plans. Please verify the following before applying online:

- Contact the Permit Center before applying for a construction permit online. A pre-submittal meeting may be required so staff can preliminarily scope your project for any additional requirements.
- Verify you have access to all your submittal documents in a clean pdf format. If your plan set is being drawn by multiple sources make sure you are able to combine them into one pdf file (plumbing, mechanical, civil etc).

1.4.2 Submittal Requirements

CPD specifies what submittal and application materials are required for a complete application, including the type of submittals, the required level of detail, the minimum qualifications of preparers of technical documents, and the number of copies that must be submitted. These submittal requirements can be obtained from the Permit Center, the City's website, or via the City's online permit submittal portal www.MyBuildingPermit.com.

For stormwater review, including temporary erosion and sediment control, Minimum Requirement #1 requires preparation of a stormwater site plan called a Technical Information Report (TIR). The content of this plan is detailed in Chapter 3 of Volume 1 of the SWMMWW, the content of which is dependent on which minimum requirements are triggered. The TIR must include the following chapters:

- a. Project Overview
- b. Existing Conditions Summary and Site Analysis
- c. Off-site Analysis Report
- d. Permanent Stormwater Control Plan (conveyance, flow control, LID, and water quality facility and analysis and design)
- e. Construction Stormwater Pollution Prevention Plan (SWPPP)
- f. Special Reports and Studies
- g. Other Permits
- h. Operation and Maintenance Manual
- i. Declaration of Covenant or Easement for Privately Maintained Flow Control and Treatment Facilities
- j. Declaration of Covenant or Easement for Privately Maintained On-site Stormwater Management Facilities
- k. Bond Quantities Worksheet

1.4.3 City of Issaquah Standard Details, Plan Notes, and Approved Materials

All designs and materials shall follow approved guidance contained in City of Issaquah standard details and the SWMMWW. These standards apply to both publicly and privately owned facilities.

City of Issaquah Standard details along with the approved materials List and standard plan notes, are available from the Public Works Engineering Department and from the City's website:

<https://www.issaquahwa.gov/1086/Water-Sewer-and-Street-Standards>

The City of Issaquah adopts the most recent WSDOT Standard Specifications for Road, Bridge, and Municipal Construction. Materials, joints and protective treatments shall be accordance with WSDOT/APWA 7-04 and 9-05.

1.4.4 Drainage Tracts, Easements and Covenants

1.4.4.1 Public Facilities

Flow control and water quality facilities and flow control BMP devices to be maintained and operated by the City (e.g., single family residential developments) must be located in a tract or right-of-way dedicated to the City of Issaquah. ***Drainage Easements*** are required for drainage facilities that will be operated and maintained by the City of Issaquah but are located on private property. Access roads serving these facilities must be located in the tract or right-of-way and must be connected to an improved public road right-of-way. Underground flow control or water quality facilities (tanks or vaults) may be allowed in private rights-of-way or roads if the easement includes provisions for facility access and maintenance. Applicants shall record the drainage easement against the property prior to final inspection and approval of drainage facilities, using accepted form that are reviewed and approved by the City.

In addition, required vegetated flow paths for full dispersion and basic dispersion BMPs that are located outside of the tract or right-of-way require a recorded ***declaration of covenant and drainage easement*** that stipulates restrictions on use and includes provisions for access and maintenance. City maintenance of these vegetated flow paths will be limited to their flow control BMP functionality. All other maintenance shall remain the responsibility of the owner(s).

1.4.4.2 Private Facilities

Flow Control and Water Quality Treatment BMPs

To ensure continued maintenance and City inspection of flow control and water quality treatment BMPs that will be privately maintained (e.g., commercial and multi-family development projects), a ***Declaration of Covenant for Maintenance and Inspection of Stormwater Facilities and BMPs*** shall be recorded against the property prior to final inspection and approval of drainage facilities. The declaration of covenant is designed to achieve the following:

- a) Provide notice to current and future owners of the presence of the stormwater facility
- b) Include a reference to the City's permit number for the project, under which the City maintains a permanent record drawing of the constructed facility.
- c) Require that all stormwater facilities be operated and maintained at the owner's expense in accordance with the original permitted design and in accordance with maintenance standards as adopted by the City in IMC 13.28.100.

- d) Grant the City the right to enter the property at reasonable times for purposes of inspecting the stormwater facility and to perform any corrective maintenance and repair that has not been performed by the property owner within a reasonable time set by the City, and to charge the property owner for the cost of any maintenance and repair work performed by the City.
- e) Prohibit any modification or removal of the drainage facility without written approval from the City.

All stormwater facilities shall be accessible for inspection and maintenance. The Operations and Maintenance Manual for the facility shall identify maintenance requirements and equipment and access required to achieve proper maintenance.

In addition, wherever a flow control or water quality treatment facility is located on a parcel separate from the development that is generating the stormwater, provisions shall be made to ensure that the owners of the development have a perpetual right to own and maintain the stormwater facilities and associated stormwater conveyance lines in the separate parcel(s). This can be done through a ***Grant of Easement***, which shall be recorded against the property prior to final inspection and approval of drainage facilities

Onsite Stormwater BMPs

To ensure future maintenance and City inspection of Onsite Stormwater BMPs located on private property, a ***Declaration of Covenant for Maintenance and Inspection of Onsite Stormwater BMP*** shall be recorded with King County for each site/lot that contains an Onsite Stormwater BMP prior to final inspection and approval. The declaration of covenant is designed to achieve the following:

- a) Provide notice to current and future owners of the presence of Onsite Stormwater BMPs on the lot and the responsibility of the owner to retain, uphold, and protect the flow control BMP devices, features, pathways, limits, and restrictions.
- b) Include as an exhibit, a recordable version of the following information: The Onsite Stormwater BMP site plan showing all developed surfaces (impervious and pervious) and the location and dimensions of flow control BMP devices, features, flowpaths (if applicable), and limits of native growth retention areas (if applicable).
- c) Require that each Onsite Stormwater BMP be operated and maintained at the owner's expense in accordance with the above exhibit.
- d) Grant the City the right to enter the property at reasonable times for purposes of inspecting the flow control BMPs and to perform any corrective maintenance, repair, restoration, or mitigation work on the Onsite Stormwater BMP that has not been performed by the property owner within a reasonable time set by the City, and to

charge the property owner for the cost of any maintenance, repair, restoration, or mitigation work performed by the City.

- e) Prohibit any modification or removal of Onsite Stormwater BMPs without written approval from the City.

1.4.5 City Acceptance of Public Drainage Facilities

IMC 13.28.080 provides criteria for accepting drainage facilities after the expiration of the 2-year maintenance period in connection with the subdivision of land:

- Requirements of IMC 13.28.070 regarding bonding and insurance during the 2-year maintenance period have been fully complied with;
- The facilities have been inspected and approved by the Department after their second year of operation; and
- All necessary easements or dedications entitling the City to properly maintain the facility have been conveyed to the City.
- Signage indicating “stormwater facility”. Signage shall be required to identify permeable pavement, bioretention, or rain gardens as designed and maintained stormwater facility.

1.4.6 Other Standards Affecting Stormwater Design

Other code requirements not identified may also apply and will be identified during the pre-application process and subsequent permit review. These requirements should be incorporated them into the drainage design as necessary.

CHAPTER 2. MINIMUM REQUIREMENTS FOR NEW DEVELOPMENT AND REDEVELOPMENT

2.1 EXEMPTIONS

Unless otherwise indicated in this Section, the practices, both Public and Private, described in this section are exempt from the Minimum Requirements, even if such practices meet the definition of new development or redevelopment.

2.1.1 Forest Practices

Forest practices regulated under Title 222 WAC, except for Class IV General forest practices that are conversions from timberland to other uses, are exempt from the provisions of the minimum requirements.

2.1.2 Pavement Maintenance

The following pavement maintenance practices are exempt: pothole and square cut patching, overlaying existing asphalt or concrete pavement with asphalt or concrete without expanding the area of coverage, shoulder grading, reshaping/regrading drainage systems, crack sealing, resurfacing with in-kind material without expanding the road prism, pavement preservation activities that do not expand the road prism, and vegetation maintenance.

The following pavement maintenance practices are not categorically exempt. The extent to which this Appendix applies is explained for each circumstance.

- Removing and replacing an asphalt or concrete pavement to base course or lower or repairing the pavement base: These are considered replaced hard surfaces and are subject to the minimum requirements that are triggered when the thresholds identified for redevelopment projects are met. Extending the pavement edge without increasing the size of the road prism or paving graveled shoulders: These are considered new impervious surfaces and are subject to the minimum requirements that are triggered when the thresholds identified for new or redevelopment projects are met.
- Resurfacing by upgrading from dirt to gravel, asphalt, or concrete; upgrading from gravel to asphalt, or concrete; or upgrading from a bituminous surface treatment (“chip seal”) to asphalt or concrete: These are considered new impervious surfaces and are subject to the minimum requirements that are triggered when the thresholds identified for new or redevelopment projects are met.

2.1.3 Underground Utility Projects

Standalone underground utility projects that replace the ground surface with in-kind material or materials with similar runoff characteristics are only subject to Minimum Requirement #2, Construction Stormwater Pollution Prevention.

2.2 DEFINITIONS RELATED TO MINIMUM REQUIREMENTS

(Note: See also definitions contained in IMC 16.26 and the SWMMWW).

Arterial – A road or street primarily for through traffic. The term generally includes roads or streets considered collectors. It does not include local access roads which are generally limited to providing access to abutting property. See also [RCW 35.78.010](#), [RCW 36.86.070](#), and [RCW 47.05.021](#).

Bioretention – Engineered facilities that treat stormwater by passing it through a specified soil profile, and either retain or detain the treated stormwater for flow attenuation. Refer to the *Stormwater Management Manual for Western Washington (SWMMWW)*, Chapter 7 of Volume V for Bioretention BMP types and design specifications.

Certified Erosion and Sediment Control Lead (CESCL) – means an individual who has current certification through an approved erosion and sediment control training program that meets the minimum training standards established by the Washington Department of Ecology (Ecology) (see BMP C160 in the *Stormwater Management Manual for Western Washington (SWMMWW)*). A CESCL is knowledgeable in the principles and practices of erosion and sediment control. The CESCL must have the skills to assess site conditions and construction activities that could impact the quality of stormwater and, the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges. Certification is obtained through an Ecology approved erosion and sediment control course. Course listings are provided online at Ecology's website.

Commercial Agriculture – means those activities conducted on lands defined in RCW 84.34.020(2) and activities involved in the production of crops or livestock for commercial trade. An activity ceases to be considered commercial agriculture when the area on which it is conducted is proposed for conversion to a nonagricultural use or has lain idle for more than five years, unless the idle land is registered in a federal or state soils conservation program, or unless the activity is maintenance of irrigation ditches, laterals, canals, or drainage ditches related to an existing and ongoing agricultural activity.

Converted vegetation (areas) – The surfaces on a project site where native vegetation, pasture, scrub/shrub, or unmaintained non-native vegetation (e.g., Himalayan blackberry, scotch broom) are converted to lawn or landscaped areas, or where native vegetation is converted to pasture.

Discharge Point – the location where a discharge leaves the Permittee’s MS4 through the Permittee’s MS4 facilities/BMPs designed to infiltrate.

Effective Impervious surface – Those impervious surfaces that are connected via sheet flow or discrete conveyance to a drainage system. Impervious surfaces are considered ineffective if: 1) the runoff is dispersed through at least one hundred feet of native vegetation in accordance with BMP T5.30 – “Full Dispersion” as described in Chapter 3 of Volume V of the *Stormwater Management Manual for Western Washington (SWMMWW)*; 2) residential roof runoff is infiltrated in accordance with Downspout Full Infiltration Systems in BMP T5.10A in Chapter 4 of Volume V of the *SWMMWW*; or 3) approved continuous runoff modeling methods indicate that the entire runoff file is infiltrated.

Erodible or leachable materials – Wastes, chemicals, or other substances that measurably alter the physical or chemical characteristics of runoff when exposed to rainfall. Examples include erodible soils that are stockpiled, uncovered process wastes, manure, fertilizers, oily substances, ashes, kiln dust, and garbage dumpster leakage.

Existing Impervious Area- Current impervious surface on a site prior to a construction project. See also *Impervious Surface*.

Existing Site Conditions- Description of the existing topography, vegetation, and drainage. Includes a description of any structures or development on the parcel including the area of existing impervious surfaces.

Hard Surface – An impervious surface, a permeable pavement, or a vegetated roof.

Highway – A main public road connecting towns and cities.

Impervious surface – A non-vegetated surface area that either prevents or retards the entry of water into the soil mantle as under natural conditions prior to development. A non-vegetated surface area which causes water to run off the surface in greater quantities or at an increased rate of flow from the flow present under natural conditions prior to development. Common impervious surfaces include, but are not limited to, roof tops, walkways, patios, driveways, parking lots or storage areas, concrete or asphalt paving, gravel roads, packed earthen materials, and oiled, macadam or other surfaces which similarly impede the natural infiltration

of stormwater. Open, uncovered retention/detention facilities shall not be considered as impervious surfaces for purposes of determining whether the thresholds for application of minimum requirements are exceeded. Open, uncovered retention/detention facilities shall be considered impervious surfaces for purposes of runoff modeling.

Land disturbing activity – Any activity that results in a change in the existing soil cover (both vegetative and non-vegetative) and/or the existing soil topography. Land disturbing activities include, but are not limited to clearing, grading, filling, and excavation. Compaction that is associated with stabilization of structures and road construction shall also be considered a land disturbing activity. Vegetation maintenance practices, including landscape maintenance and gardening, are not considered land-disturbing activity. Stormwater facility maintenance is not considered land disturbing activity if conducted according to established standards and procedures.

Low Impact Development (LID) – A stormwater and land use management strategy that strives to mimic pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration by emphasizing conservation, use of on-site natural features, site planning, and distributed stormwater management practices that are integrated into a project design.

LID Best Management Practices – Distributed stormwater management practices, integrated into a project design, that emphasize pre-disturbance hydrologic processes of infiltration, filtration, storage, evaporation and transpiration. LID BMPs include, but are not limited to, bioretention, rain gardens, permeable pavements, roof downspout controls, dispersion, soil quality and depth, minimal excavation foundations, vegetated roofs, and water re-use.

LID Principles – Land use management strategies that emphasize conservation, use of on-site natural features, and site planning to minimize impervious surfaces, native vegetation loss, and stormwater runoff.

Maintenance – Repair and maintenance includes activities conducted on currently serviceable structures, facilities, and equipment that involves no expansion or use beyond that previously existing and results in no significant adverse hydrologic impact. It includes those usual activities taken to prevent a decline, lapse, or cessation in the use of structures and systems. Those usual activities may include replacement of dysfunctional facilities, including cases where environmental permits require replacing an existing structure with a different type of structure, as long as the functioning characteristics of the original structure are not changed. One example is the replacement of a collapsed, fish blocking, round culvert with a new box culvert under the same span, or width, of roadway. In regard to stormwater facilities, maintenance includes assessment to ensure ongoing proper operation, removal of built-up pollutants (i.e.

sediments), replacement of failed or failing treatment media, and other actions taken to correct defects as identified in the maintenance standards of Appendix A of Volume V of the *Stormwater Management Manual for Western Washington (SWMMWW)*. See also Pavement Maintenance exemptions in Section 1 of this Appendix.

Native vegetation – Vegetation comprised of plant species, other than noxious weeds, that are indigenous to the coastal region of the Pacific Northwest and which reasonably could have been expected to naturally occur on the site. Examples include trees such as Douglas Fir, western hemlock, western red cedar, alder, big-leaf maple, and vine maple; shrubs such as willow, elderberry, salmonberry, and salal; and herbaceous plants such as sword fern, foam flower, and fireweed.

New development – Land disturbing activities, including Class IV -general forest practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of hard surfaces; and subdivision, short subdivision and binding site plans, as defined and applied in Chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development.

Off-Site Analysis Report - an assessment of a development or redevelopment project to evaluate the potential impacts of drainage from the site and due to existing system deficiencies, storms in excess of the design storm, or climate change. The OAR would identify, when needed, a plan of measures, mitigation, adaptation, and resilience strategies to minimize to probable impacts of a drainage failure to the new project site and minimize aggravating existing problems. The OAR will assess the mechanism and causes for failure, the probable impacts, including flooding, property damage, business or activity disruption, or transportation impacts, the potential magnitude, and measures to minimize probable impacts.

Outfall – a point source as defined by 40 CFR 122.2 at the point where a discharge leaves the permittee's MS4 and enters a surface receiving waterbody or surface receiving waters. Outfall does not include pipes, tunnels, or other conveyances which connect segments of the same stream or other surface waters and are used to convey primarily surface waters (i.e., culverts).

On-site Stormwater Management BMPs (aka Onsite Stormwater BMP): As used in this appendix, a synonym for Low Impact Development BMPs.

Permeable pavement – Pervious concrete, porous asphalt, permeable pavers or other forms of pervious or porous paving material intended to allow passage of water through the pavement section. It often includes an aggregate base that provides structural support and acts as a stormwater reservoir.

Pervious Surface – Any surface material that allows stormwater to infiltrate into the ground. Examples include lawn, landscape, pasture, native vegetation areas, and permeable pavements.

Pollution-generating hard surface (PGHS) – Those hard surfaces considered to be a significant source of pollutants in stormwater runoff. See the listing of surfaces under pollution-generating impervious surface.

Pollution-generating impervious surface (PGIS) – Those impervious surfaces considered to be a significant source of pollutants in stormwater runoff. Such surfaces include those which are subject to: vehicular use; industrial activities (as further defined in the glossary of the *Stormwater Management Manual for Western Washington (SWMMWW)*); storage of erodible or leachable materials, wastes, or chemicals, and which receive direct rainfall or the run-on or blow-in of rainfall; metal roofs unless they are coated with an inert, non-leachable material (e.g., baked-on enamel coating); or roofs that are subject to venting significant amounts of dusts, mists, or fumes from manufacturing, commercial, or other indoor activities.

Pollution-generating pervious surfaces (PGPS) – Any non-impervious surface subject to vehicular use, industrial activities (as further defined in the glossary of the *Stormwater Management Manual for Western Washington (SWMMWW)*); or storage of erodible or leachable materials, wastes, or chemicals, and that receive direct rainfall or run-on or blow-in of rainfall, use of pesticides and fertilizers, or loss of soil. Typical PGPS include permeable pavement subject to vehicular use, lawns, and landscaped areas including: golf courses, parks, cemeteries, and sports fields (natural and artificial turf).

Pre-developed condition – The native vegetation and soils that existed at a site prior to the influence of Euro-American settlement. The pre-developed condition shall be assumed to be a forested land cover unless reasonable, historic information is provided that indicates the site was prairie prior to settlement.

Project site – That portion of a property, properties, and/or right of way (including frontage improvements) subject to land disturbing activities, new hard surfaces, or replaced hard surfaces.

Rain Garden – A non-engineered shallow landscaped depression, with compost-amended native soils and adapted plants. The depression is designed to pond and temporarily store stormwater runoff from adjacent areas, and to allow stormwater to pass through the amended soil profile.

Receiving waterbody or Receiving waters – naturally and/or reconstructed naturally occurring surface water bodies, such as creeks, streams, rivers, lakes, wetlands, estuaries, and marine waters, or groundwater, to which a MS4 discharges.

Redevelopment – On a site that is already substantially developed (i.e., has 35% or more of existing hard surface coverage), the creation or addition of hard surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation or expansion of a building or other structure; replacement of hard surface that is not part of a routine maintenance activity; and land disturbing activities.

Replaced hard surface – For structures, the removal and replacement of hard surfaces down to the foundation. For other hard surfaces, the removal down to bare soil or base course and replacement.

Replaced impervious surface – For structures, the removal and replacement of impervious surfaces down to the foundation. For other impervious surfaces, the removal down to bare soil or base course and replacement.

Site – The area defined by the legal boundaries of a parcel or parcels of land that is (are) subject to new development or redevelopment. For road projects, the length of the project site and the right-of-way boundaries define the site.

Source control BMP – A structure or operation that is intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. The *Stormwater Management Manual for Western Washington (SWMMWW)* separates source control BMPs into two types. *Structural Source Control BMPs* are physical, structural, or mechanical devices, or facilities that are intended to prevent pollutants from entering stormwater. *Operational BMPs* are non-structural practices that prevent or reduce pollutants from entering stormwater. See Volume IV of the *SWMMWW* or the King County Stormwater Pollution Control Manual for details.

Stormwater Facility – A constructed component of a stormwater drainage system, designed or constructed to perform a particular function, or multiple functions. Stormwater facilities include, but are not limited to, pipes, swales, ditches, culverts, street gutters, detention ponds, retention ponds, constructed wetlands, infiltration devices, catch basins, oil/water separators, and biofiltration swales.

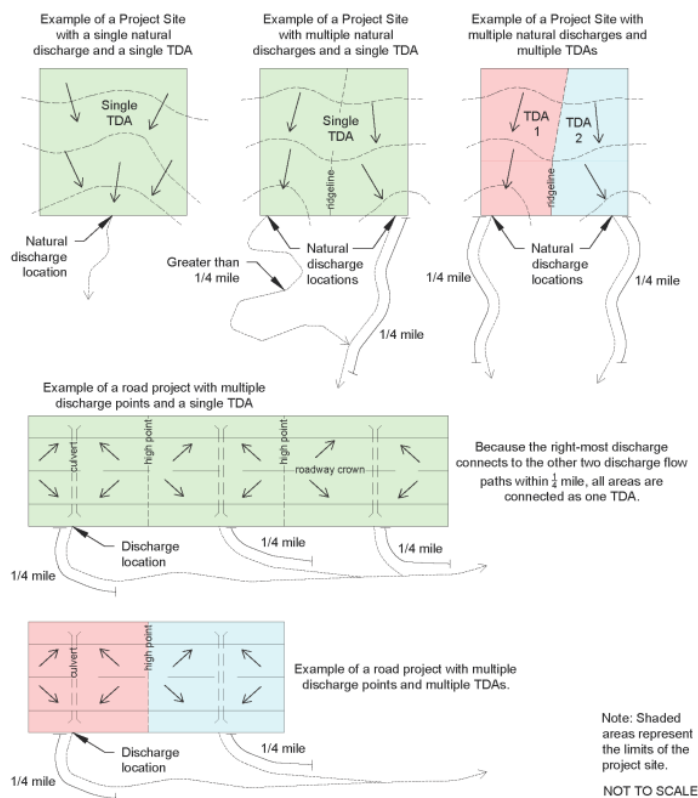
Stormwater Site Plan (also known as a Technical Information Report) – A comprehensive report containing all of the technical information and analysis necessary for regulatory agencies to evaluate proposed new development or redevelopment project for compliance with

stormwater requirements. Contents of the Stormwater Site Plan will vary with the types and size of the project, and individual site characteristics. It includes a Construction Stormwater Pollution Prevention Plan and Permanent Stormwater Control Plan. Elements included in preparing a Stormwater Site Plan is contained in Chapter 3 Volume III of the SWMMWW.

Surface Water and Stormwater- Water originating from rainfall and other precipitation that is found in drainage facilities, rivers, streams, springs, seeps, ponds, lakes, and wetlands as well as shallow ground water.

Threshold Discharge Area – An on-site area draining to a single natural discharge location or multiple natural discharge locations that combine within one-quarter mile downstream (as determined by the shortest flowpath). The examples in Figure 2.1 below illustrate this definition. The purpose of this definition is to clarify how the thresholds of this appendix are applied to project sites with multiple discharge points.

Figure 2-1. Threshold Discharge Area



Transportation Projects- a standalone project where the primary purpose for the project is to preserve or facilitate the safe transport of people or goods via any mode of travel.

Underground Utility Projects- a standalone project installing, maintaining, and/ or replacing an underground utility which produce and/or carry electric power, gas, sewage, stormwater, water, communications, or oil.

Vehicular Use – Regular use of an impervious or pervious surface by motor vehicles. The following are subject to regular vehicular use: roads, un-vegetated road shoulders, bike lanes within the traveled lane of a roadway, driveways, parking lots, unrestricted access fire lanes, vehicular equipment storage yards, and airport runways.

The following are not considered subject to regular vehicular use: paved bicycle pathways separated from and not subject to drainage from roads for motor vehicles, restricted access fire lanes, and infrequently used maintenance access roads.

Wetland – Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Wetlands do not include those artificial wetlands intentionally created from non-wetland sites, including, but not limited to, irrigation and drainage ditches, grass-lined swales, canals, detention facilities, wastewater treatment facilities, farm ponds, and landscape amenities, or those wetlands created after July 1, 1990, that were unintentionally created as a result of the construction of a road, street, or highway. Wetlands may include those artificial wetlands intentionally created from non-wetland areas to mitigate the conversion of wetlands.

2.3 APPLICABILITY OF THE MINIMUM REQUIREMENTS

2.3.1 Thresholds

Not all of the Minimum Requirements apply to every development or redevelopment project. The applicability varies depending on the project type and size. This section identifies thresholds that determine the applicability of the Minimum Requirements to projects. Use the flow charts in Figures 2-2 and 2-3 to determine which of the Minimum Requirements apply. The Minimum Requirements themselves are presented in Section 2.4.

Use the thresholds in sections 2.3 and 2.4 at the time of application for a subdivision, plat, short plat, building permit, or other construction permit. The plat or short plat approval shall identify all stormwater BMPs that are required for each lot. For projects involving only land disturbing activities, (e.g., clearing or grading), the thresholds apply at the time of application for the

permit allowing or authorizing that activity. Note the exemption in Section 2.1 for forest practices other than Class IV General.

Figure 2-2. Flow Chart for Determining Requirements for New Development

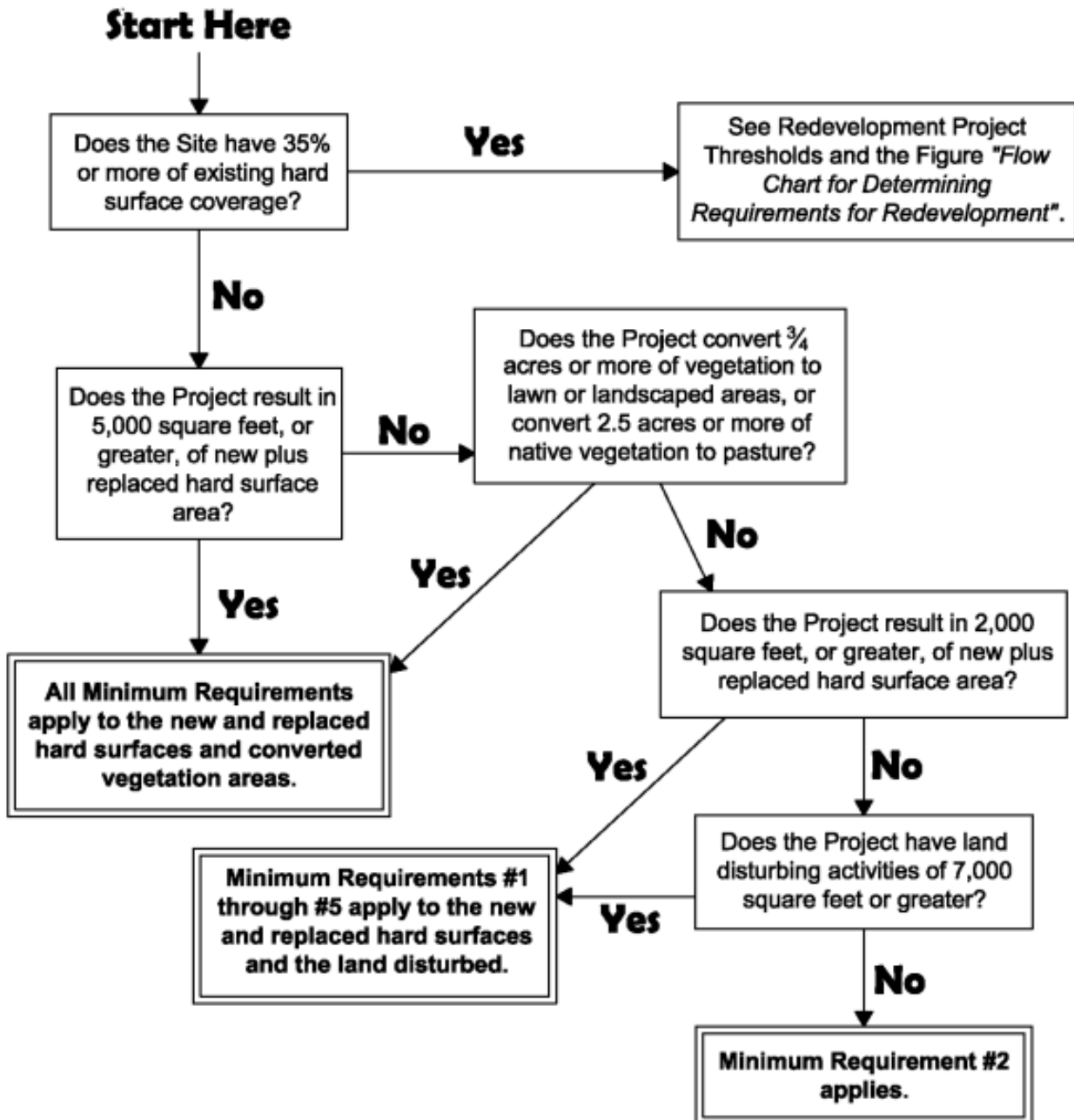
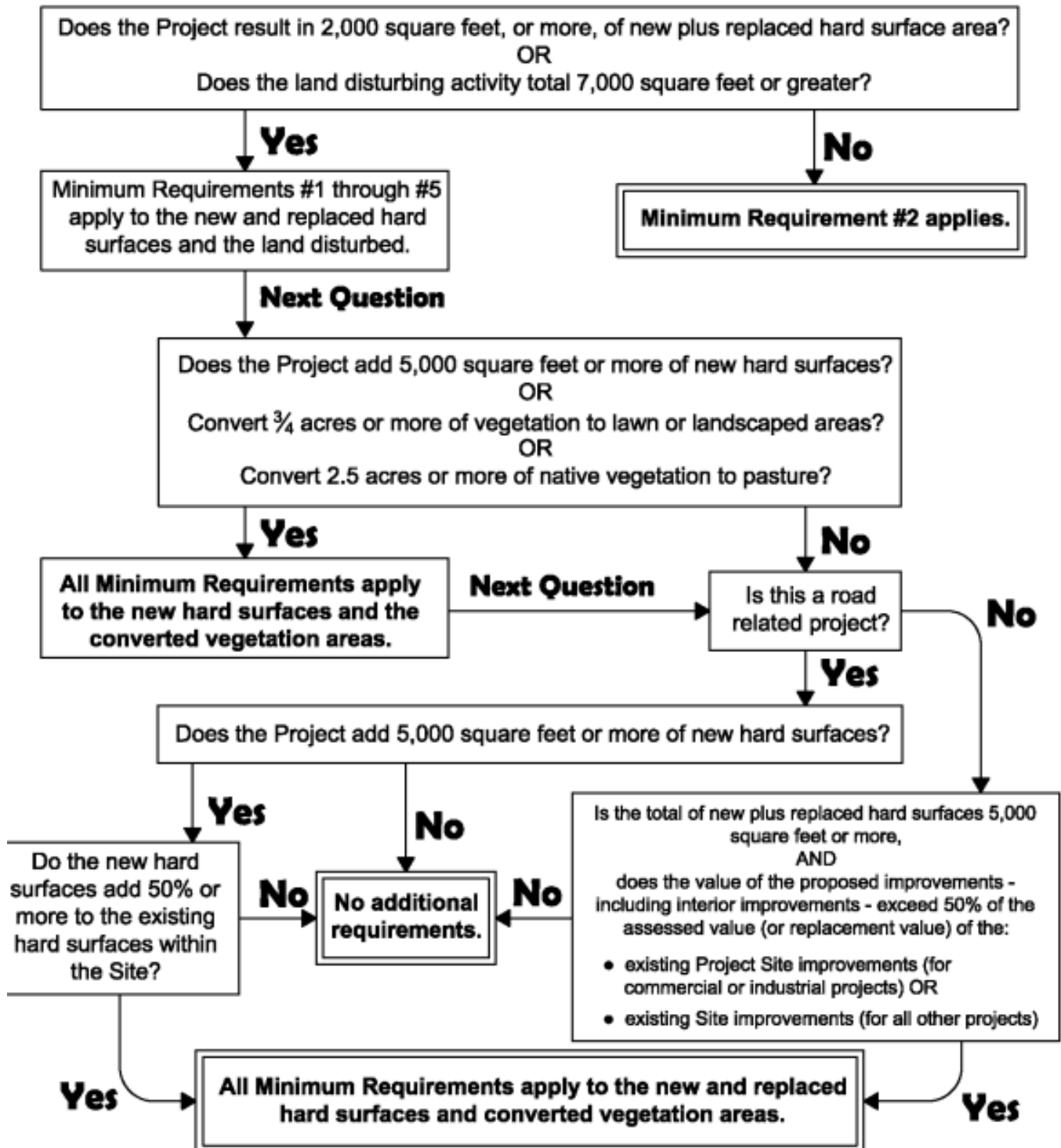


Figure 2-3. Flow Chart for Determining Requirements for Redevelopment



2.3.2 New Development

All new development shall be required to comply with Minimum Requirement #2.

The following new development shall comply with Minimum Requirements #1 through #5 for the new and replaced hard surfaces and the land disturbed:

- Results in 2,000 square feet, or greater, of new plus replaced hard surface area, or
- Has land disturbing activity of 7,000 square feet or greater.

The following new development shall comply with Minimum Requirements #1 through #9 for the new and replaced hard surfaces and the converted vegetation areas:

- Results in 5,000 square feet, or greater, of new plus replaced hard surface area, or
- Converts $\frac{3}{4}$ acres, or more, of vegetation to lawn or landscaped areas, or
- Converts 2.5 acres, or more, of native vegetation to pasture.

2.3.3 Redevelopment

All redevelopment shall be required to comply with Minimum Requirement #2.

The following redevelopment shall comply with Minimum Requirements #1 through #5 for the new and replaced hard surfaces and the land disturbed:

- Results in 2,000 square feet, or more, of new plus replaced hard surface area, or
- Has land disturbing activity of 7,000 square feet or greater.

The following redevelopment shall comply with Minimum Requirements #1 through #9 for the new hard surfaces and converted vegetation areas:

- Adds 5,000 square feet or more of new hard surfaces or,
- Converts $\frac{3}{4}$ acres, or more, of vegetation to lawn or landscaped areas, or
- Converts 2.5 acres, or more, of native vegetation to pasture.

Economic threshold: other types of redevelopment projects shall comply with Minimum Requirements #1 through #9 for the new and replaced hard surfaces and the converted vegetation areas if the total of new plus replaced hard surfaces is 5,000 square feet or more, and the valuation of proposed improvements – including interior improvements – exceeds 50% of the assessed value of the existing site improvements or existing project site (for commercial and industrial projects). (See Figure 2-3).

2.3.4 Transportation Projects

For standalone road-related projects, runoff from the replaced and new hard surfaces (including pavement, shoulders, curbs, and sidewalks) and the converted vegetation areas shall meet all the Minimum Requirements if the new hard surfaces total 5,000 square feet or more and total 50% or more of the existing hard surfaces within the project limits. The project limits shall be defined by the length of the project and the width of the right-of-way (See Figure 2-3).

2.3.5 Central Issaquah Area Alternative Flow Control Standard

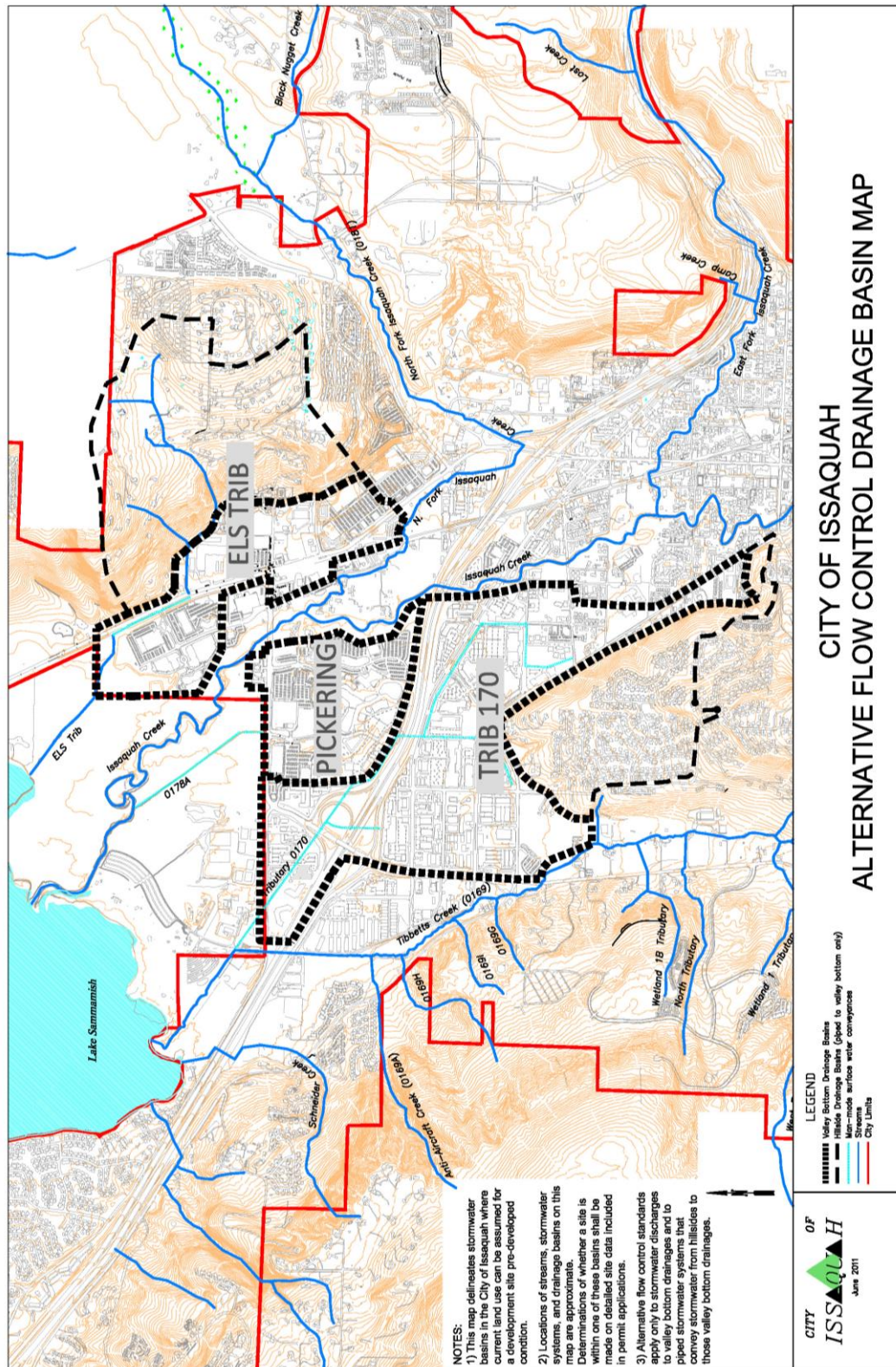
This alternative flow control standard modifies the flow control standard in the valley floor area of downtown Issaquah. In these sub-basins the pre-development condition can be assumed to be existing site conditions instead of forested. Figure 2-4 identifies these subbasins. Projects that incorporate this alternative flow control standard will need to confirm that the project site drains to these sub-basins.

2.3.6 Central Issaquah Area Seasonally Saturated Soil Assumption

The City in 2011 conducted a technical analysis, in coordination with the Department of Ecology, into the pre-development hydrology of this area and specifically where seasonally saturated soil conditions can be documented near the surface (Northwest Hydraulic Consultants 2011). In general, the Ecology's Stormwater Manual specifies that flow control facilities mitigating development and re-development must mimic the runoff characteristics of natural, historical soil conditions (i.e., pre-development hydrology) over a wide range of storm conditions. Ecology staff have further clarified that such pre-development conditions should reflect soils and hydrology that existed prior to first settlement, which occurred in this area in the mid-1800s. That analysis concluded that, historically, soils in valley floor soils do exhibit seasonally saturated conditions as revealed by soil boring logs. For those areas that are seasonally saturated there is sufficient justification of historic high groundwater to use a saturated (i.e., wetland) soil assumption for pre-development analysis.

The seasonally saturated soils assumption is not a blanket adjustment that can be applied to a development project in the absence of site-specific soil data. All project proposals that propose to incorporate a seasonally saturated soil assumption must provide onsite soil log information to confirm this conclusion, following the methods contained in the Northwest Hydraulic Consultants analysis (this memo available through the City's web site or from CPD).

Figure 2-4. Central Issaquah Area Alternative Flow Control Standard Map



2.4 MINIMUM REQUIREMENTS

This Section describes the Minimum Requirements for stormwater management at new development and redevelopment sites. Section 2.4 of this Addendum should be consulted to determine which of the minimum requirements below apply to any given project. Figures 2-2 and 2-3 should be consulted to determine whether the minimum requirements apply to new surfaces, replaced surfaces, or new and replaced surfaces.

2.4.1 MR#1: Preparation of Stormwater Site Plans

The City requires a Stormwater Site Plan (also termed a Technical Information Report) from all projects meeting the thresholds in Section 2.3 of this Appendix. Stormwater Site Plans shall use site-appropriate development principles, as required, and encouraged by local development codes, to retain native vegetation and minimize impervious surfaces to the extent feasible. Stormwater Site Plans shall be prepared in accordance with Chapter 3 of Volume 1 of the 2019 *SWMWW* and section 1.4.2 of this Addendum.

2.4.2 MR#2: Construction Stormwater Pollution Prevention Plan (SWPPP)

Note: To avoid redundant submittals, the City will allow compliance with this Minimum Requirement for an individual site through Ecology's *General NPDES Permit for Stormwater Discharges Associated with Construction Activities*. Documentation of Ecology's stormwater general permit compliance must be supplied with the City permit application.

2.4.2.1 Thresholds

All new development and redevelopment projects are responsible for preventing erosion and discharge of sediment and other pollutants into receiving waters.

Projects which result in 2,000 sq. ft. or more of new plus replaced hard surface area, or which disturb 7,000 sq. ft. or more of land must prepare a SWPPP as part of the Stormwater Site Plan.

Projects below those thresholds are not required to prepare a Construction SWPPP but must consider all of the Elements listed below for Construction SWPPPs and develop controls for all elements that pertain to the project site.

2.4.2.2 General Requirements

The SWPPP shall include a narrative (to include both TESC and Proposed Drainage Conveyance) and drawings. All BMPs shall be clearly referenced in the narrative and marked on the drawings. The SWPPP narrative shall include documentation to explain and justify the pollution prevention decisions made for the project. Each of the thirteen elements listed below must be considered and included in the SWPPP unless site conditions render the element unnecessary and the exemption from that element is clearly justified in the narrative of the SWPPP.

Clearing and grading activities for developments shall be permitted only if conducted pursuant to an approved site development plan (e.g., subdivision approval) that establishes permitted areas of clearing, grading, cutting, and filling. These permitted clearing and grading areas and any other areas required to preserve critical or sensitive areas, buffers, native growth protection easements, or tree retention areas shall be delineated on the site plans and the development site.

The SWPPP shall be implemented beginning with initial land disturbance and until final stabilization. Sediment and Erosion control BMPs shall be consistent with the BMPs contained in chapter 4 of Volume II of the *Stormwater Management Manual for Western Washington* (SWMMWW).

Seasonal Work Limitations - A Wet Season TESC Plan is required to initiate or continue soil disturbing activities during October 1st through April 30th (per IMC 16.26.050) and must be submitted for approval to CPD Engineering by September 1st. The Wet Season TESC Plan must include the following:

- Slope stabilization methods.
- Dewatering plan for runoff capture, containment, turbidity monitoring, and discharge or disposal method.
- Plan to import clean granular material for use as structural fill and backfill.
- Geotechnical support (in writing) of proposed wet season activities.

Based on the information provided and/or local weather conditions, the City may expand or restrict the seasonal limitation on site disturbance. The following activities are exempt from the seasonal clearing and grading limitations:

1. Routine maintenance and necessary repair of erosion and sediment control BMPs,

2. Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil, and
3. Activities where there is one hundred percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.

2.4.2.3 Construction Stormwater Pollution Prevention Plan (SWPPP) Elements

Please refer to Volume 1 of Chapter 3 of the SWMMWW MR2: Construction Stormwater Pollution Prevention Plan (SWPPP) for full SWPPP requirements.

2.4.3 MR#3: Source Control of Pollution

All known, available and reasonable source control BMPs must be applied to all projects. Source control BMPs must be selected, designed, and maintained in accordance with Volume IV of the SWMMWW.

2.4.4 MR#4: Preservation of Natural Drainage Systems and Outfalls

Natural drainage patterns shall be maintained, and discharges from the project site shall occur at the natural location, to the maximum extent practicable. The manner by which runoff is discharged from the project site must not cause a significant adverse impact to downstream receiving waters and down gradient properties. All outfalls must be designed according to the 2021 King County Surface Water Design Manual and require appropriately designed energy dissipation. An Offsite Analysis is required, including analysis of contribution from offsite flows and downstream analysis to ensure adequate capacity and no adverse impact to nearby properties.

For conveyance system design, please refer to section 1.2.3.1 of this Addendum.

2.4.5 MR#5: On-Site Stormwater Management

2.4.5.1 Applicability

Except as provided below, projects shall employ On-site Stormwater Management BMPs in accordance with the following project thresholds, standards, and lists to infiltrate, disperse, and retain stormwater runoff on-site to the extent feasible without causing flooding or erosion impacts.

Projects qualifying as flow control exempt in accordance with Section 2.4.7 of this Addendum do not have to achieve the LID performance standard, nor consider bioretention, rain gardens, permeable pavement, and full dispersion (unless an overflow connection to public storm is not available) if using List #1 or List #2. However, those projects must implement BMP T5.13; BMPs T5.10A, B, or C; and BMP T5.11 or T5.12, if feasible.

2.4.5.2 Project Thresholds

1. Projects triggering only Minimum Requirements #1 through #5 shall either:
 - a. Use On-site Stormwater Management BMPs from List #1 for all surfaces within each type of surface in List #1; or
 - b. Use any Flow Control BMP(s) desired to achieve the LID Performance Standard and apply BMP T5.13: Post-Construction Soil Quality and Depth.
2. Projects triggering Minimum Requirements #1 through #9 shall either:
 - a. Use On-site Stormwater Management BMPs from List #2 for all surfaces within each surface in List #2; or
 - b. Use any Flow Control BMP(s) desired to achieve the LID Performance Standard and apply BMP T5.13: Post-Construction Soil Quality and Depth.

2.4.5.3 List #1: On-site Stormwater Management BMPs for Projects Triggering Minimum Requirements #1 through #5

For each surface, consider the BMPs in the order listed for that type of surface. Use the first BMP that is considered feasible. No other On-site Stormwater Management BMP is necessary for that surface. Feasibility shall be determined by evaluation against:

1. Design criteria, limitations, and infeasibility criteria identified for each BMP in the *SWMMWW*; and
2. Competing Needs Criteria listed in Volume V of the *SWMMWW*.

Lawn and landscaped areas:

1. Post-Construction Soil Quality and Depth in accordance with BMP T5.13 in Volume V of the *SWMMWW*

Roofs:

1. Full Dispersion in accordance with BMP T5.30 in Volume V of the *SWMMWW*, or Downspout Full Infiltration Systems in accordance with BMP T5.10A in Volume V of the *SWMMWW*.
2. Rain Gardens in accordance with BMP T5.14A in Volume V, or Bioretention in

accordance with Volume V of the SWMMWW. The rain garden or bioretention facility must have a minimum horizontal projected surface area below the overflow which is at least 5% of the area draining to it.

3. Downspout Dispersion Systems in accordance with BMP T5.10B in Volume V of the SWMMWW.
4. Perforated Stub-out Connections in accordance with BMP T5.10C in Volume V of the SWMMWW.

Other Hard Surfaces:

1. Full Dispersion in accordance with BMP T5.30 in Volume V of the SWMMWW.
2. Permeable pavement² in accordance with BMP T5.15 in Volume V of the SWMMWW, or Rain Gardens in accordance with BMP T5.14A in Volume V, or Bioretention in accordance with Volume V of the SWMMWW. The rain garden or bioretention facility must have a minimum horizontal projected surface area below the overflow which is at least 5% of the area draining to it.
3. Sheet Flow Dispersion in accordance with BMP T5.12, or Concentrated Flow Dispersion in accordance with BMP T5.11 in Volume V of the SWMMWW.

² This is not a requirement to pave these surfaces. Where pavement is proposed, it must be permeable to the extent feasible unless full dispersion is employed.

2.4.5.4 List #2: On-site Stormwater Management BMPs for Projects Triggering Minimum Requirements #1 through #9

For each surface, consider the BMPs in the order listed for that type of surface. Use the first BMP that is considered feasible. No other On-site Stormwater Management BMP is necessary for that surface. Feasibility shall be determined by evaluation against:

1. Design criteria, limitations, and infeasibility criteria identified for each BMP in the SWMMWW; and
2. Competing Needs Criteria listed in Volume V of the SWMMWW.

Lawn and landscaped areas:

1. Post-Construction Soil Quality and Depth in accordance with BMP T5.13 in Volume V of the SWMMWW

Roofs:

1. Full Dispersion in accordance with BMP T5.30 in Volume V of the SWMMWW, or Downspout Full Infiltration Systems in accordance with BMP T5.10A in Volume V of the SWMMWW
2. Bioretention (See Volume V of the SWMMWW) facilities that have a minimum

horizontally projected surface area below the overflow which is at least 5% of the of the total surface area draining to it

3. Downspout Dispersion Systems in accordance with BMP T5.10B in Volume V of the *SWMMWW*
4. Perforated Stub-out Connections in accordance with BMP T5.10C in Volume V of the *SWMMWW*.

Other Hard Surfaces:

1. Full Dispersion in accordance with BMP T5.30 in Volume V of the *SWMMWW*
2. Permeable pavement in accordance with BMP T5.15 in Volume V of the *SWMMWW*
3. Bioretention (Volume V of the *SWMMWW*) facilities that have a minimum horizontally projected surface area below the overflow which is at least 5% of the total surface area draining to it.
4. Sheet Flow Dispersion in accordance with BMP T5.12, or Concentrated Flow Dispersion in accordance with BMP T5.11 in Volume V of the *SWMMWW*

2.4.6 MR#6: Runoff Treatment

2.4.6.1 Project Thresholds

When assessing a project against the following thresholds, only consider those hard and pervious surfaces that are subject to this minimum requirement as determined in Section 2.3. The following require construction of stormwater treatment facilities:

- Project sites in which the total on and offsite pollution-generating hard surface (PGHS) is 5,000 square feet or more in a threshold discharge area of the project, or
- Project sites in which the total of pollution-generating pervious surfaces (PGPS) – not including permeable pavements - is three-quarters (3/4) of an acre or more in a threshold discharge area, and from which there will be a surface discharge in a natural or man-made conveyance system from the site.

2.4.6.2 Treatment-Type Thresholds

1. Oil Control

Treatment to achieve Oil Control applies to projects that have “high-use sites.” High-use sites are those that typically generate high concentrations of oil due to high traffic turnover or the frequent transfer of oil. High-use sites include:

- a. An area of a commercial or industrial site subject to an expected average daily traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building

area;

- b. An area of a commercial or industrial site subject to petroleum storage and transfer in excess of 1,500 gallons per year, not including routinely delivered heating oil;
- c. An area of a commercial or industrial site subject to parking, storage or maintenance of 25 or more vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.);
- d. A road intersection with a measured ADT count of 25,000 vehicles or more on the main roadway and 15,000 vehicles or more on any intersecting roadway, excluding projects proposing primarily pedestrian or bicycle use improvements.

2. Phosphorus Treatment

The City of Issaquah adopts the Phosphorus Removal Treatment Standard for all stormwater discharging to surface water. Discharge to groundwater outside of the ¼-mile boundary with Lake Sammamish is exempt.

3. Enhanced Treatment

Except where specified below under “4. Basic Treatment”, Enhanced treatment for reduction in dissolved metals is required for the following project sites that: 1) discharge directly to fresh waters or conveyance systems tributary to fresh waters designated for aquatic life use or that have an existing aquatic life use; or 2) use infiltration strictly for flow control – not treatment – and the discharge is within ¼ mile of a fresh water designated for aquatic life use or that has an existing aquatic life use:

- a. Industrial project sites,
- b. Commercial project sites,
- c. Multi-family project sites, and
- d. High AADT roads as follows:
 - Inside Urban Growth Management Areas
 - Fully controlled and partially controlled limited access highways with Annual Average Daily Traffic (AADT) counts of 15,000 or more
 - All other roads with an AADT of 7,500 or greater
 - Outside of Urban Growth Management Areas:
 - Roads with an AADT of 15,000 or greater unless discharging to a 4th Strahler order stream or larger;
 - Roads with an AADT of 30,000 or greater if discharging to a 4th Strahler order stream or larger (as determined using 1:24,000 scale maps to delineate stream order).

Any areas of the above-listed project sites that are identified as subject to Basic Treatment requirements (below), are not also subject to Enhanced Treatment requirements. For developments with a mix of land use types, the Enhanced Treatment requirement shall apply when the runoff from the areas subject to the Enhanced Treatment requirement comprise 50% or more of the total runoff within a threshold discharge area.

4. Basic Treatment:

Basic Treatment is required in the following circumstances:

- Project sites that discharge to the ground, UNLESS:
 - 1) The soil suitability criteria for infiltration treatment are met (See Chapter 3, Volume III of the *SWMMWW*), and alternative pretreatment is provided (see Chapter 6, Volume V of the *SWMMWW*); or
 - 2) The project site uses infiltration strictly for flow control – not treatment - and the discharge is within ¼-mile of a phosphorus sensitive lake (use a Phosphorus Treatment facility), or
 - 3) The project site is industrial, commercial, multi-family residential, or a high AADT road (consistent with the Enhanced Treatment-type thresholds listed above) and is within ¼ mile of a fresh water designated for aquatic life use or that has an existing aquatic life use. (use an Enhanced Treatment facility).
- Residential projects not otherwise needing phosphorus control as designated by USEPA, the Department of Ecology, or by the Permittee;
- Project sites discharging directly (or indirectly through a municipal separate storm sewer system) to Basic Treatment Receiving Waters (Appendix I-C of the *SWMMWW*);
- Project sites that drain to fresh water that is not designated for aquatic life use, and does not have an existing aquatic life use; and project sites that drain to waters not tributary to waters designated for aquatic life use or that have an existing aquatic life use;
- Landscaped areas of industrial, commercial, and multi-family project sites. For developments with a mix of land use types, the Basic Treatment requirement shall apply when the runoff from the areas subject to the Basic Treatment requirement comprise 50% or more of the total runoff within a threshold discharge area.

2.4.6.3 Treatment Facility Sizing

Size stormwater treatment facilities for the entire area that drains to them, even if some of those areas are not pollution-generating or were not included in the project site threshold decisions (Section 2.4 of this appendix) or the treatment threshold decisions of this minimum requirement.

Water Quality Design Storm Volume

The volume of runoff predicted from a 24-hour storm with a 6-month return frequency (a.k.a., 6-month, 24-hour storm). Wetpool facilities are sized based upon the volume of runoff predicted through use of the Natural Resource Conservation Service curve number equations in Chapter 2 of Volume III of the *SWMMWW*), for the 6-month, 24-hour storm. Alternatively, when using an approved continuous runoff model, the water quality design storm volume shall be equal to the simulated daily volume that represents the upper limit of the range of daily volumes that accounts for 91% of the entire runoff volume over a multi-decade period of record.

Water Quality Design Flow Rate**1. Preceding Detention Facilities or when Detention Facilities are not required:**

The flow rate at or below which 91% of the runoff volume, as estimated by an approved continuous runoff model, will be treated. Design criteria for treatment facilities are assigned to achieve the applicable performance goal (e.g., 80% TSS removal) at the water quality design flow rate. At a minimum, 91% of the total runoff volume, as estimated by an approved continuous runoff model, must pass through the treatment facility(ies) at or below the approved hydraulic loading rate for the facility(ies).

2. Downstream of Detention Facilities:

The water quality design flow rate must be the full 2-year release rate from the detention facility.

Treatment Facility Selection, Design, and Maintenance

Stormwater treatment facilities shall be:

2. Selected in accordance with the process identified in Chapter 4 of Volume I, and Chapter 2 of Volume V of the *SWMMWW*,
- Designed in accordance with the design criteria in Volume V of the *SWMMWW*, and
- Maintained in accordance with the maintenance schedule in Volume V of the *SWMMWW*.

2.4.6.4 Additional Requirements

The discharge of untreated stormwater from pollution-generating hard surfaces to ground water must not be authorized by the Permittee, except for the discharge achieved by infiltration or dispersion of runoff through use of On-site Stormwater Management BMPs in

accordance with Volume V of the *SWMMWW*; or by infiltration through soils meeting the soil suitability criteria in Chapter 3 of Volume III of the *SWMMWW*.

2.4.7 MR#7: Flow Control

2.4.7.1 Applicability

Except as provided below, projects must provide flow control to reduce the impacts of stormwater runoff from hard surfaces and land cover conversions. The requirement below applies to projects that discharge stormwater directly, or indirectly through a conveyance system, into a freshwater body.

Flow control is not required for projects that discharge directly to, or indirectly through an MS4 to a water listed in Appendix I-E of the *SWMMWW* subject to the following restrictions:

- Direct discharge to the exempt receiving water does not result in the diversion of drainage from any perennial stream classified as Types 1, 2, 3, or 4 in the State of Washington Interim Water Typing System, or Types “S”, “F”, or “Np” in the Permanent Water Typing System, or from any category I, II, or III wetland: and
- Flow splitting devices or drainage BMPs are applied to route natural runoff volumes from the project site to any downstream Type 5 stream or category IV wetland:
 - Design of flow splitting devices or drainage BMP’s will be based on continuous hydrologic modeling analysis. The design will assure that flows delivered to Type 5 stream reaches will approximate, but in no case exceed, durations ranging from 50% of the 2-year to the 50-year peak flow.
 - Flow splitting devices or drainage BMP’s that deliver flow to category IV wetlands will also be designed using continuous hydrologic modeling to preserve pre-project wetland hydrologic conditions unless specifically waived or exempted by regulatory agencies with permitting jurisdiction: and
- The project site must be drained by a conveyance system that is comprised entirely of manmade conveyance elements (e.g., pipes, ditches, outfall protection) and extends to the ordinary high-water line of the exempt receiving water; and
- The conveyance system between the project site and the exempt receiving water shall have sufficient hydraulic capacity to convey discharges from future build-out conditions (under current zoning) of the site, and the existing condition from non-project areas from which runoff is or will be collected; and
- Any erodible elements of the manmade conveyance system must be adequately stabilized to prevent erosion under the conditions noted above.

If the discharge is to a stream that leads to a wetland, or to a wetland that has an outflow to a stream, both this minimum requirement (Minimum Requirement #7) and Minimum Requirement #8 apply.

2.4.7.2 *Thresholds*

Please refer to the TDA Thresholds section, Volume I Chapter 3, of the SWMMWW.

2.4.7.3 *Standard Flow Control Requirement*

Stormwater discharges shall match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 50% of the 2-year peak flow up to the full 50-year peak flow. The pre-developed condition to be matched shall be a forested land cover unless:

- Reasonable, historic information is available that indicates the site was prairie prior to settlement (modeled as “pasture” in the Western Washington Hydrology Model); or
- The Central Issaquah Alternative Flow Control Standard applies (see Section 2.2.5); or
- This standard requirement is waived for sites that will reliably infiltrate all the runoff from hard surfaces and converted vegetation areas.

2.4.7.4 *Additional Requirement*

Flow Control BMPs shall be selected, designed, and maintained in accordance with Volume III of the SWMMWW or an approved equivalent.

2.4.8 MR#8: Wetlands Protection

2.4.8.1 *Applicability*

The requirements below apply only to projects whose stormwater discharges into a wetland, either directly or indirectly through a conveyance system.

2.4.8.2 *Thresholds*

The thresholds identified in Minimum Requirement #6 – Runoff Treatment, and Minimum Requirement #7 – Flow Control shall also be applied to determine the applicability of this requirement to discharges to wetlands.

2.4.8.3 *Standard Requirement*

Projects shall comply with Guide Sheets #1 through #3 in Appendix I-D of the *SWMMWW*. The hydrologic analysis shall use the existing land cover condition to determine the existing hydrologic conditions unless directed otherwise by a regulatory agency with jurisdiction.

2.4.8.4 Additional Requirements

Stormwater treatment and flow control facilities shall not be built within a natural vegetated buffer, except for:

- Necessary conveyance systems as approved by the Permittee; or
- As allowed in wetlands approved for hydrologic modification and/or treatment in accordance with Guide Sheet 2 in Appendix I-D of the *SWMMWW*.

2.4.9 MR#9: Operation and Maintenance

An operation and maintenance manual that is consistent with the provisions in Volume V of the *SWMMWW* shall be provided for proposed stormwater facilities and BMPs. The party (or parties) responsible for maintenance and operation shall be identified in the operation and maintenance manual. For private facilities a copy of the operation and maintenance manual shall be retained on-site or within reasonable access to the site and shall be transferred with the property to the new owner. A log of maintenance activity that indicates what actions were taken shall be kept and be available for inspection by the local government.